

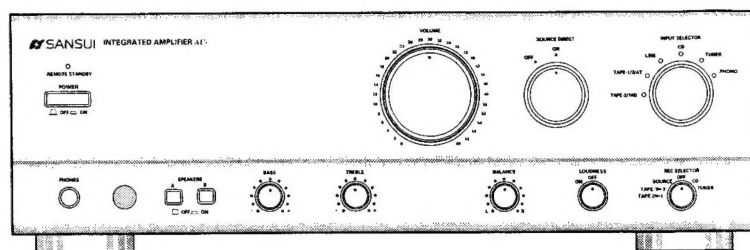
SANSUI

SERVICE MANUAL

AU-X510R

AU-X515R

AU-~~X~~305R



STEREOPHONIC INTEGRATED AMPLIFIER

CAUTION (注意)

1. Parts identified the Δ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current for resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

Δ 印がついている部品は、安全性を維持するために、重要な部品です。
これらの部品を交換する際には、必ず指定された部品を使用して下さい。

Notice / 告知

The symbols "OO", "SS", "EU", "FTZ" and "XX" on the parts list and the schematic diagram mean followings respectively.

日本国向け製品専用部品には"OO"マークが付いています。

OO Manufactured for **Japanese** market.

SS Manufactured for **Saudi Arabian** market.

EU Manufactured for **European** market.

FTZ Manufactured for **F. R. Germanic** market.

XX **Standard Version**.

(EXPORT) (Non Japanese market.)

Non Mark **Common parts**.

マークの無い部品は全仕向け共通です。

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•Design and specifications subject to change without notice for improvements.

•Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selector.

•本機の意匠及び仕様の一部は、改良の為、予告無く変更する事があります。

1. SPECIFICATIONS / 仕様

● Main Amplifier Section

Output Power

Power band width (at 20Hz ~ 20kHz & lesser than 0.08% total harmonics distortion)	
At each channel into 8Ω	55Wr.m.s.
Rated power (XX, SS at 1kHz lesser than 0.08% T.H.D.)	
At each channel into 8Ω	60Wr.m.s.
Rated power (EU, FTZ at 1kHz lesser than 1% T.H.D.)	
At each channel into 8Ω	65Wr.m.s.
At each channel into 4Ω ("D.I.N.")	65Wr.m.s.
Total harmonics distortion (at 10Hz~20kHz)	
At 55W output each channel into 8Ω	0.08%
Noise (at each channel into 8Ω)	0.3mVr.m.s.
Load impedance (of speaker terminals at each channel)	4Ω ~ 16Ω

● Pre Amplifier Section

Input sensitivity and impedance (at 1kHz)

PHONO (MM) input terminals	3.5mVr.m.s. / 47kΩ
The other input terminals	200mVr.m.s. / 47kΩ

Maximum input capability (at 1kHz)

PHONO (MM) input terminals (less than 0.1% THD)	100mV
---	-------

Output voltage and impedance (at 1kHz)

TAPE RECORDING terminals	150mVr.m.s. / 47kΩ
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Frequency response (at 1W output)

PHONO (MM) input terminals	20Hz ~ 20kHz ±0.5dB
The other input terminals	10Hz ~ 70kHz ±1dB

Signal to noise ratio (into I.H.F. - A202 network, short circuit)

PHONO (MM) input terminals	80dB
The other input terminals	100dB

Separation of channels (at 1kHz)

Separation of the other sources (at 1kHz)	80dB
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Tone control

Bass (at 50Hz) & Treble (at 10kHz)	+8dB ~ -8dB
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Loudness filter (at -30dB point of master volume)	+9dB at 50Hz, +5dB at 10kHz
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● General Section (The others)

Power requirements

XX, SS	A.C. 120V, A.C. 220V or A.C. 240V / 50Hz or 60Hz
EU, FTZ	A.C. 230V / 50Hz

Power consumption

XX, SS	270W
EU, FTZ	350W

External Maximum consumption power of extra outlet

Unswitched total maximum	250W
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Dimensions (Package dimensions)

Width	430mm / 16 - 15/16 inches (526mm / 20 - 3/4 inches)
Height	134mm / 5 - 5/16 inches (234mm / 9 - 1/4 inches)
Depth	315mm / 12 - 7/16 inches (390mm / 15 - 3/8 inches)

Weight of solid (Packet weight)

Bulk (Volume of packet)	7.5kg / 16.5lbs (10.0kg / 22lbs)
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● 主増幅器部

最大実効出力 ("EIAJ" 6Ω 負荷時)	78Wr.m.s.
全高調波歪率 (10Hz ~ 20kHz 6Ω 負荷 55W 出力時)	0.08%
残留雑音 (8Ω 負荷時)	0.3mVr.m.s.
負荷 (スピーカー出力端子)	4Ω ~ 16Ω

● 前置増幅器部

入力感度と負荷 (1kHz 時)

PHONO (MM) 入力端子	3.5mVr.m.s. / 47kΩ
その他の入力端子	200mVr.m.s. / 47kΩ

最大許容入力 (1kHz 時)

PHONO (MM) 入力端子 (T.H.D. 0.1% 以内)	100mV
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出力電圧と負荷 (1kHz 時)

TAPE RECORDING 端子	150mVr.m.s. / 47kΩ
-------------------	--------------------

周波数特性 (1W 出力時)

PHONO (MM) 入力端子	20Hz ~ 20kHz ±0.5dB
その他の入力端子	10Hz ~ 70kHz ±1dB

S/N 比 (入力短絡時 I.H.F. - A202 ネットワーク)

PHONO (MM) 入力端子	80dB
その他の入力端子	100dB

チャンネル・セパレーション (1kHz 時)

クロス・トーク (1kHz 時)	60dB
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トーン・コントロール

低域 (50Hz 時) & 高域 (10kHz 時)	+8dB ~ -8dB
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ラウドネス・フィルター (音量調節器 -30dB 時)	+9dB at 50Hz, +5dB at 10kHz
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● 総合部 (その他)

供給電源	交流 100V / 50Hz 又は 60Hz
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定格消費電力	130W
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A.C. アウト・レット

非連動合計最大	250W
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外形寸法 (梱包時)

全幅	430mm (526mm)
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全高	134mm (234mm)
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奥行	315mm (390mm)
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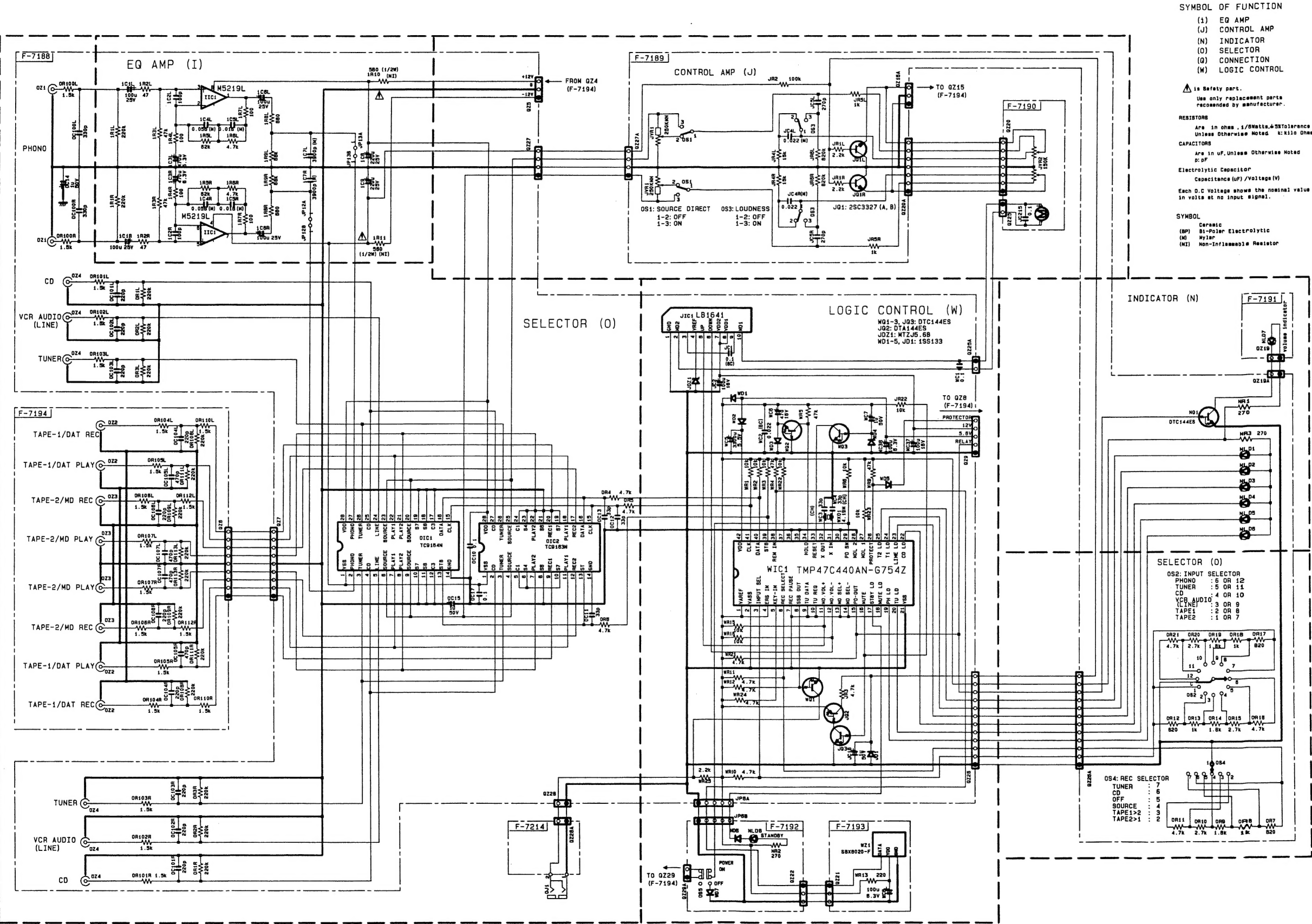
質量 (梱包時)	7.5kg (10.0kg)
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梱包寸数	0.048m³
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2. SCHEMATIC DIAGRAM / 回路図 2-1. PRE AMPLIFIER CIRCUIT / プリ・アンプ回路

• Design and specifications subject to change without notice for improvements.
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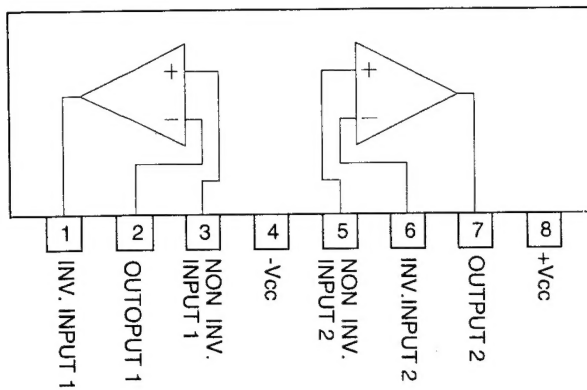
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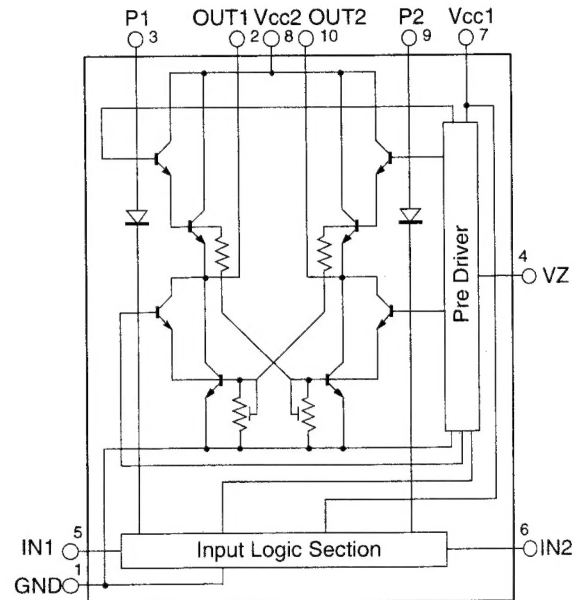
3. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF ICs

/ 使用 IC の内部ブロック図及び端子機能

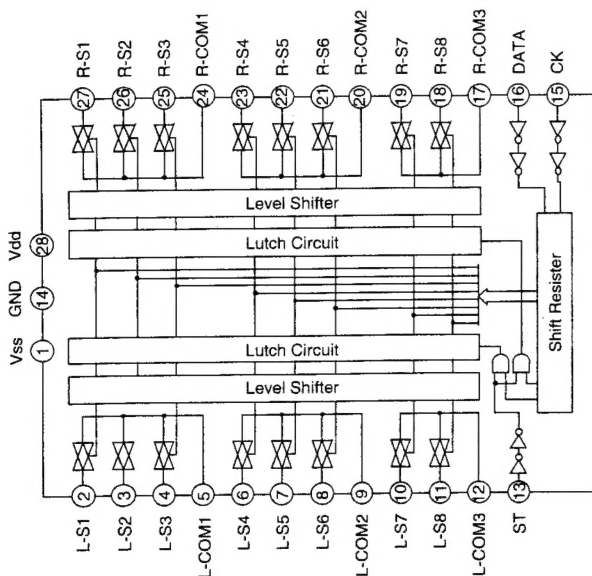
● M5219L <OPERATIONAL AMPLIFIER>



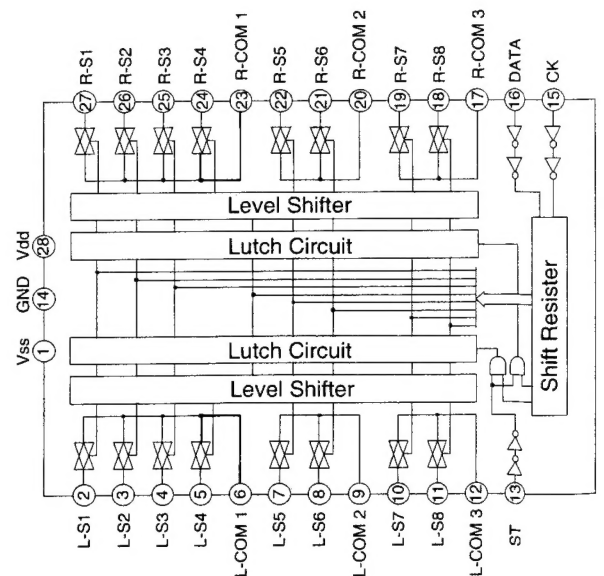
● LB1641 <MOTOR DRIVER>



● TC9163AN <ANALOG MULTIPLEXER>



● TC9164AN <ANALOG MULTIPLEXER>



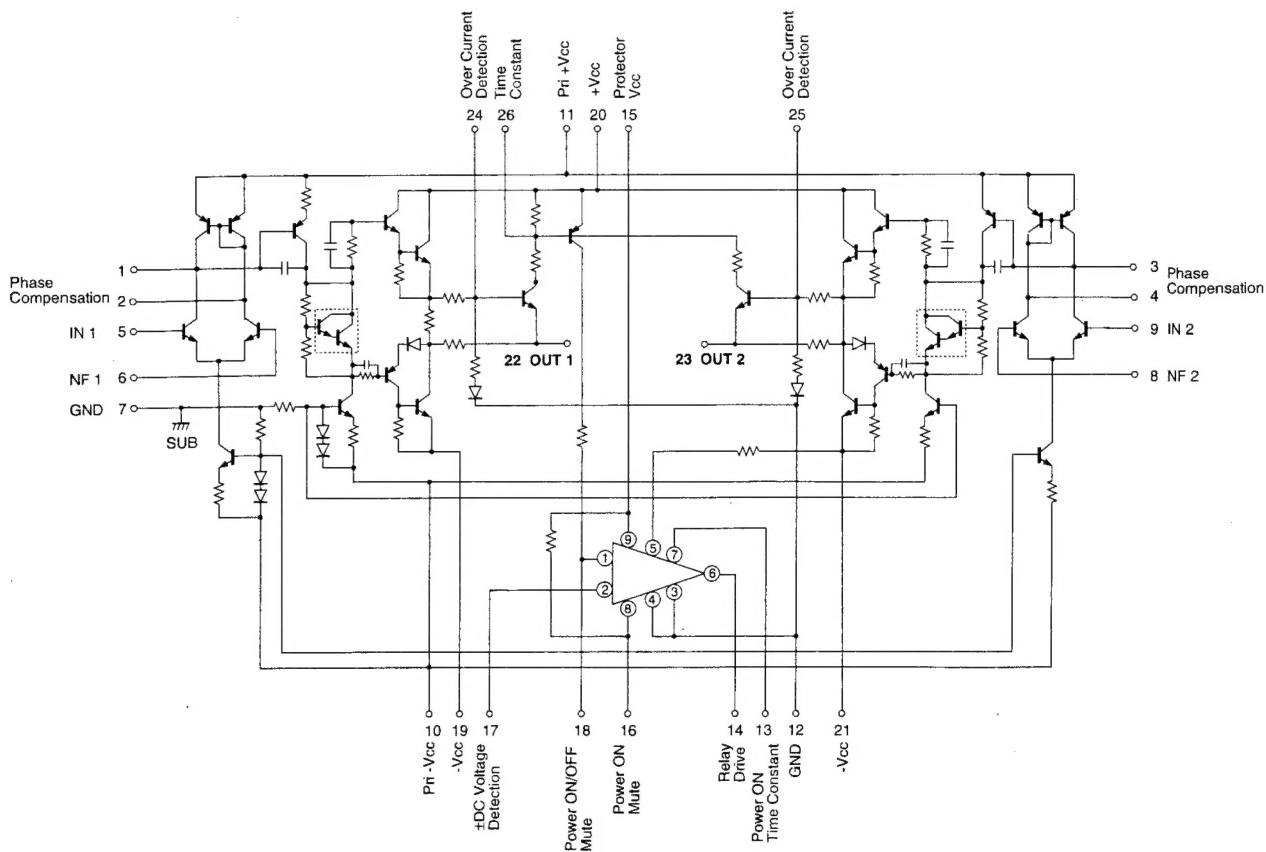
● TMP47C440AN-G754Z

<SYSTEM CONTROL MICRO PROCESSOR UNIT> (Description)

Pin No.	I/O	Function	Active
1	I	+5V	
2	I	GND	
5	A/D I	KEY IN	
6	A/D I	REC SELECTOR	
7	O	REC PAUSE	
8	O	SSB OUT	H
9	O	TUNER DATA	
10	O	TU. REQ	
11	O	MO.VOL+	H
12	O	MO. VOL-	H
15	O	POWER OUT	H
16	O	MUTE	H
17	O	STAND BY LED	L
18	O	MUTE LED	L
19	O	PHONO LED	L
20	O	TUNER LED	L

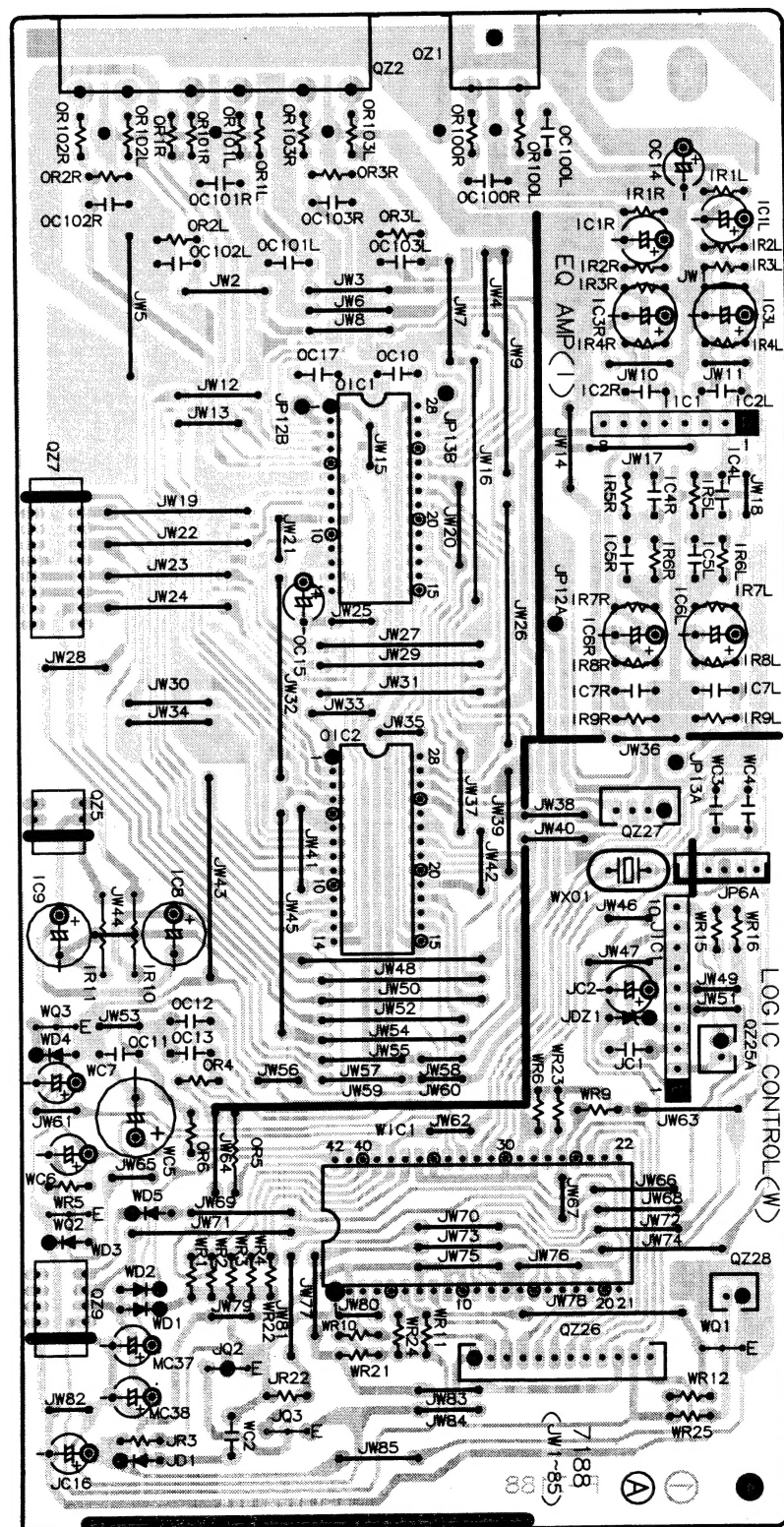
Pin No.	I/O	Function	Active
21	I	GND	
22	O	CD LED	L
23	O	LINE LED	L
24	O	TAPE1 LED	L
25	O	TAPE2 LED	L
26	O	PROTECT	H
29	I	POWER SW	L
31	I	XIN	
32	O	XOUT	
33	I	RESET	L
34	I	HOLD	
38	I	REMOTE IN	
39	O	STB	H
40	O	DATA	
41	O	CLK	L
42	I	+5V	

● STK4204MK5 <MAIN AMPLIFIER>

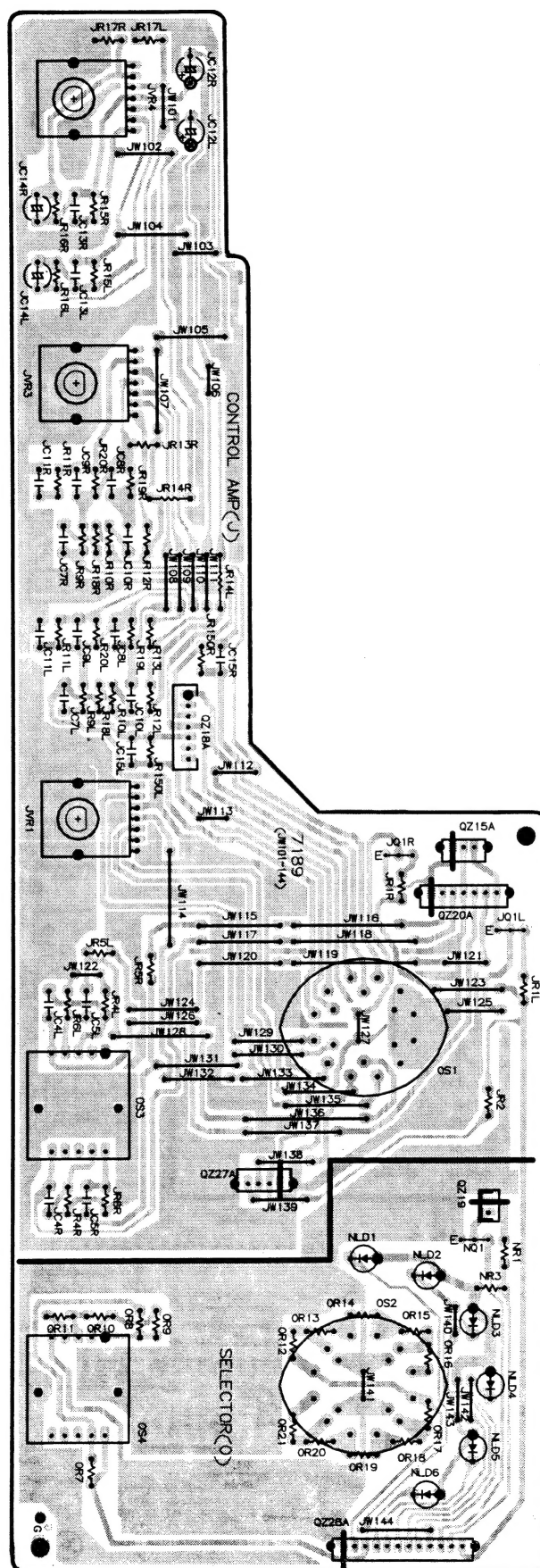


／プリント基板の部品配置図

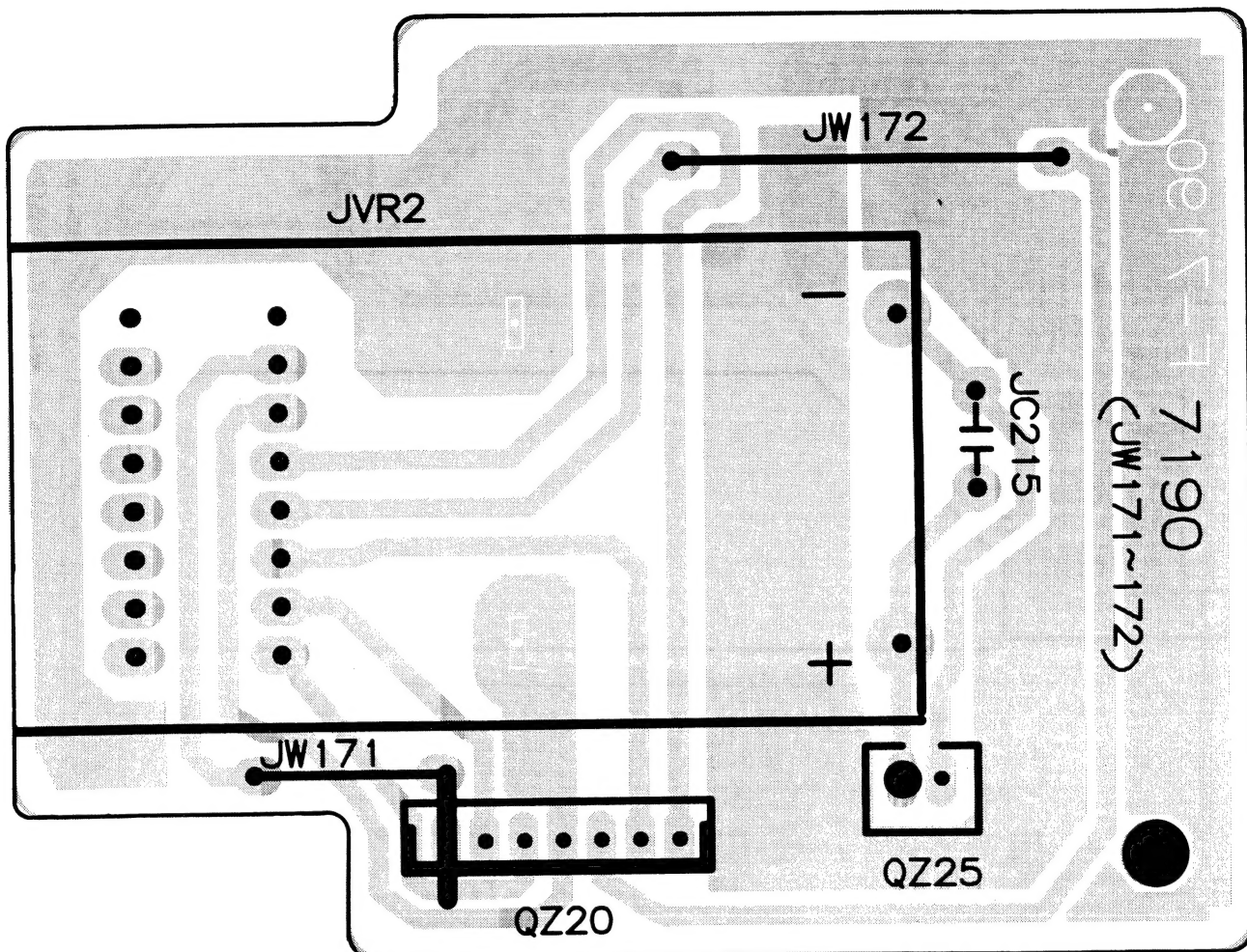
/イコライザー・アンプ及び切替基板 (COMPONENT SIDE VIEW)



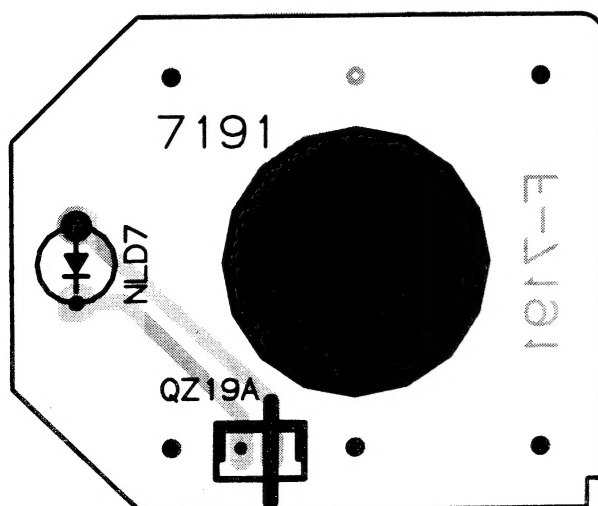
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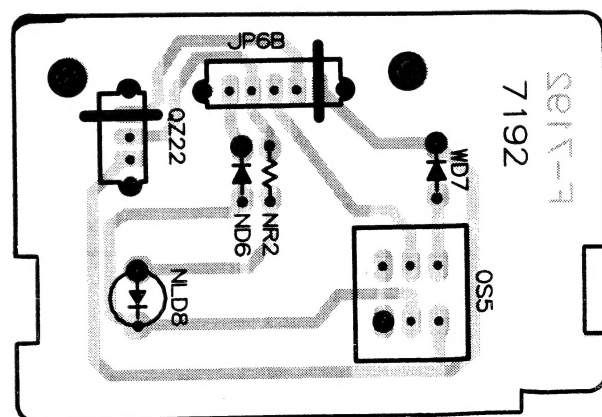
● F-7190 VOLUME BOARD / ボリューム基板 (COMPONENT SIDE VIEW)



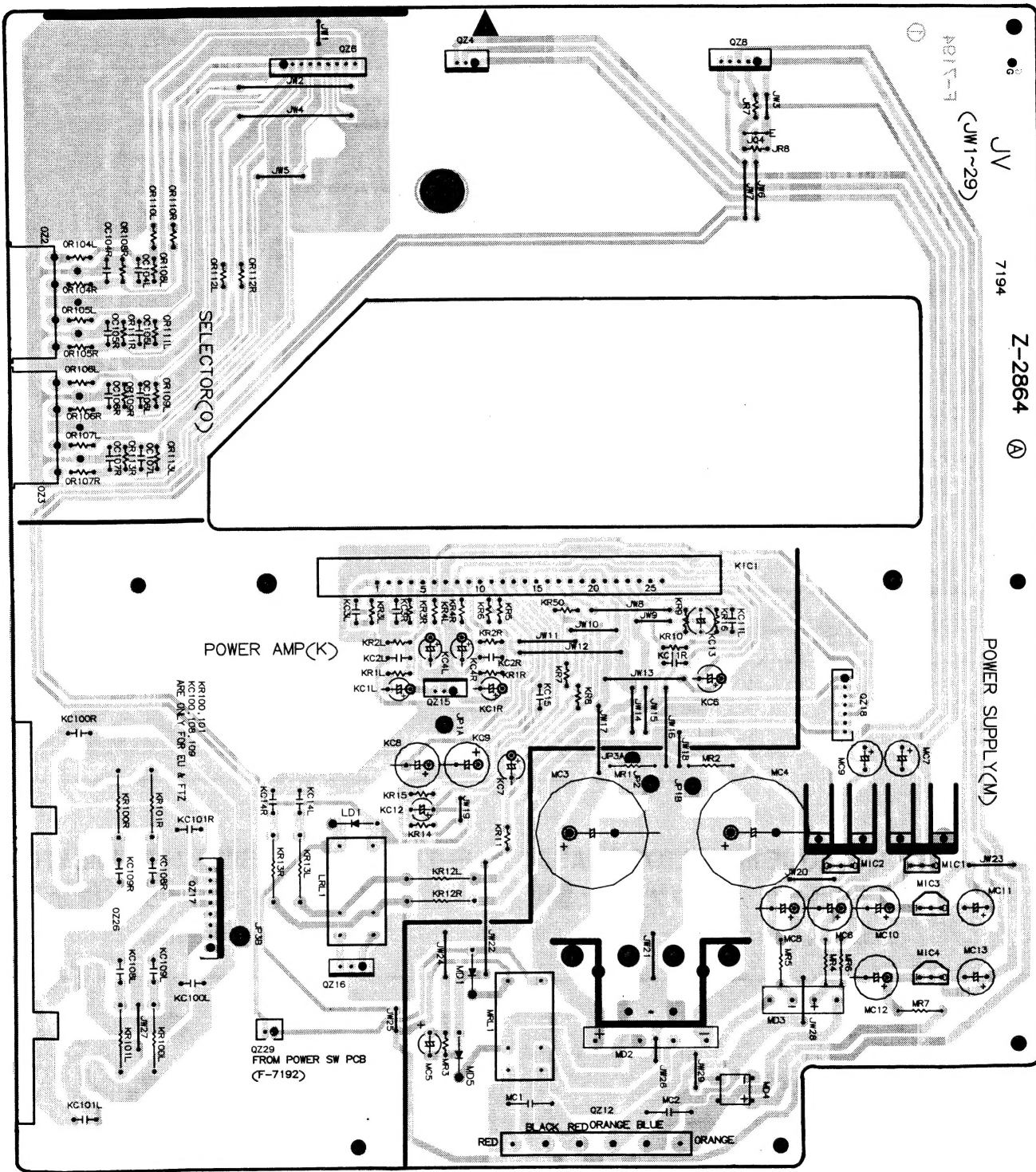
● F-7191 VOLUME INDICATOR BOARD
/ ボリューム・インジケーター基板
(COMPONENT SIDE VIEW)



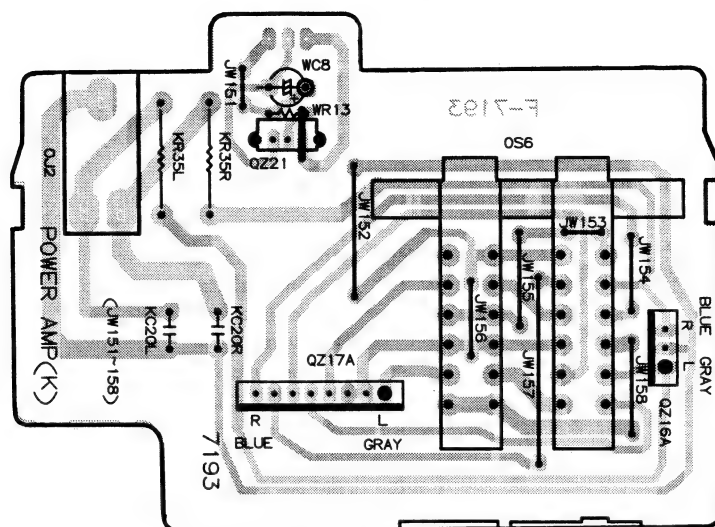
● F-7192 POWER SWITCH & INDICATOR
BOARD / パワー・スイッチ及び表示基板
(COMPONENT SIDE VIEW)



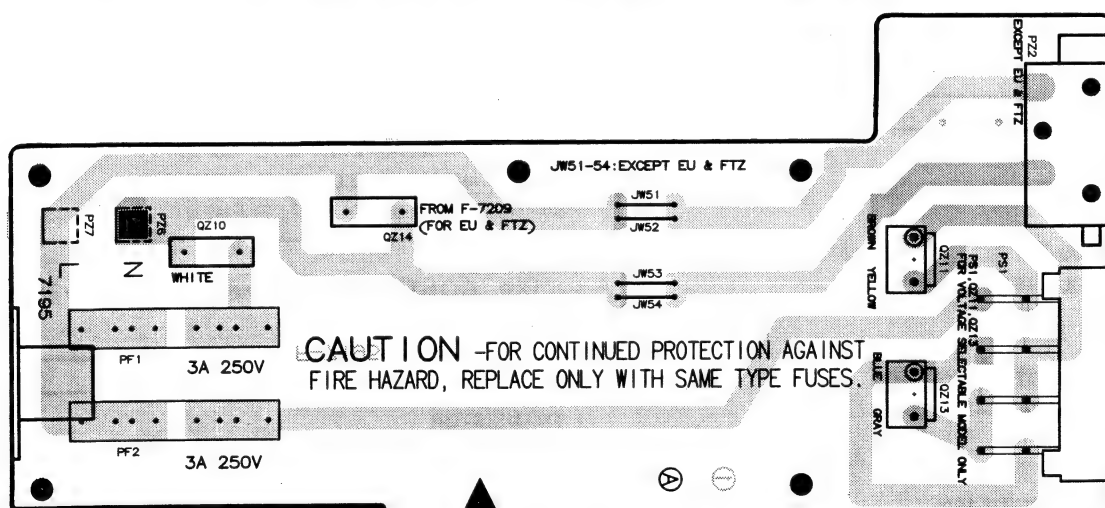
● F-7194 MAIN BOARD / 主基板 (COMPONENT SIDE VIEW)



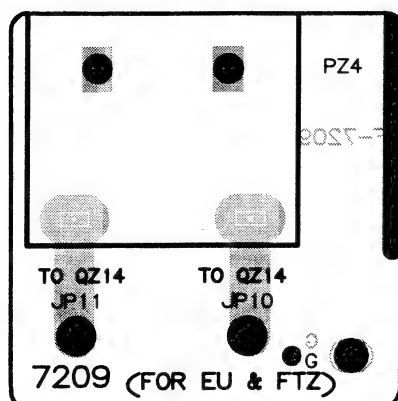
● F-7193 SPEAKER SWITCH BOARD / スピーカー・スイッチ基板
(COMPONENT SIDE VIEW)



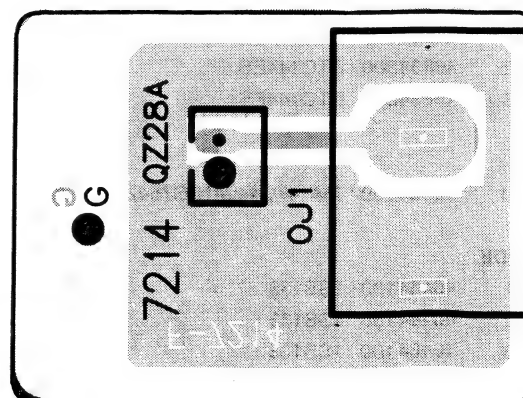
● F-7195 A.C. POWER SUPPLY BOARD / 一次電源基板 (COMPONENT SIDE VIEW)



● F-7209 A.C. OUTLET BOARD
/A.C. アウトレット基板
(COMPONENT SIDE VIEW)



● F-7214 SYSTEM CONTROL JACK BOARD
/システム・コントロール・ジャック基板
(COMPONENT SIDE VIEW)



5. PARTS LIST OF BOARD / プリント基板部品表

Notice for Parts/ 部品供給上の注意

- Some printed circuit board are not supplied assembled.
To separate these in this Service Manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.
- Since some capacitors and resistors are omitted from parts lists in service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
- Abbreviations in this Parts List are as follows.
 - プリント基板の中には、アッセンブリー供給できないものがあります。
基板番号の後にストック番号の付いていないものは、アッセンブリー供給できませんのでご注意ください。
ただし、基板上の個々の部品については供給いたします。
 - 部品表に記載されていない、抵抗・コンデンサーがあります。それらについては、1987年3月発行の新規標準抵抗・コンデンサーパーツリストを参照してください。
 - このマニュアルには、略語が使用されております、それらについては、略語表を参照してください。

Abbreviations List

C.R. : Carbon Resistor	E.B.L. : Low Leak Bi-Polar
S.R. : Solid Resistor	Electrolytic Capacitor
Ce.R. : Cement Resistor	Ta.C. : Tantalum Capacitor
M.R. : Metal Film Resistor	F.C. : Film Capacitor
F.R. : Fusing Resistor	M.P. : Metalized Paper
N.I.R. : Non-Inflammable	Capacitor
Resistor	M.M.C. : Metalized Mylar
A.R. : Array Resistor	Capacitor
C.C. : Ceramic Capacitor	P.C. : Polystyrene Capacitor
C.T. : Ceramic Capacitor,	P.P. : Polypropylene
Temperature	Capacitor
Compensation	A.C. : Array Capacitor
E.C. : Electrolytic Capacitor	V.R. : Variable Resistor
E.L. : Low Leak Electrolytic	S.V.R. : Semi Variable Resistor
Capacitor	SW. : Switch
E.B. : Bi-Polar Electrolytic	Chip.R. : Chip Resistor
Capacitor	Chip.C. : Chip Capacitor

F-7188 EQUALIZER AMP. & SELECTOR BOARD / イコライザー・アンプ及び切替基板

<Stock No. 01412500>

Parts No.	Stock No.	Description
• IC		
iIC1	46579100	M5219L OP.-AMP. (RIAA)
△iR10	49853000	N.I.R. 1/2W 560Ω
△iR11	49853000	N.I.R. 1/2W 560Ω
• TRANSISTOR		
jQ2	46834200	DTA144ES
jQ3	46834300	DTC144ES
• IC		
oIC1	49475700	TC9164AN
oIC2	49312200	TC9163AN
oZ1	49487600	TERMINAL BOARD 2P T6105
oZ2	49963900	TERMINAL BOARD 6P T6313
• TRANSISTOR		
wQ1	46834300	DTC144ES
wQ2	46834300	DTC144ES
wQ3	46834300	DTC144ES
• IC		
wIC1	49824100	TMP47C440AN-G754Z (M.P.U.)
• DIODE		
wD1	46464100	1SS133
wD2	46464100	1SS133
wD3	46464100	1SS133

Parts No. Stock No. Description

wD4	46464100	1SS133
wD5	46464100	1SS133
wC5	48785900	E.C. 5.5V 3300μF
	or 48797300	E.C. 5.5V 3300μF
wXO1	49488500	QUARTZ ELEMENT CSA4.19MG

F-7189 CONTROL BOARD / コントロール基板

<Stock No. 01412600>

Parts No.	Stock No.	Description
• TRANSISTOR		
jQ1	46604301	2SC3327
• IC		
jIC1	48982600	LB1641
• DIODE		
jD1	46464100	1SS133
• ZENER DIODE		
jDZ1	49676500	MTZJ5.6B
jC14	48103000	E.B. 50V 0.22μF
jVR1	49956800	V.R. 250kΩ (MN)
jVR3	49963500	V.R. 50kΩ (C)
jVR4	49963500	V.R. 50kΩ (C)
• TRANSISTOR		
nQ1	46834300	DTC144ES
nLD1	49343200	L.E.D. SEL3810A
	or 49967500	L.E.D. SEL6810A

F-7189

Parts No.	Stock No.	Description
nLD2	49343200	L.E.D. SEL3810A
or	49967500	L.E.D. SEL6810A
nLD3	49343200	L.E.D. SEL3810A
or	49967500	L.E.D. SEL6810A
nLD4	49343200	L.E.D. SEL3810A
or	49967500	L.E.D. SEL6810A
nLD5	49343200	L.E.D. SEL3810A
or	49967500	L.E.D. SEL6810A
nLD6	49343200	L.E.D. SEL3810A
or	49967500	L.E.D. SEL6810A
oS1	49940600	ROTARY SW. SRRM62
oS2	49940700	ROTARY SW. SRRMIC
oS3	49963200	ROTARY SW. SRBV22
oS4	49963300	ROTARY SW. SRBV16

F-7190 VOLUME BOARD / ボリューム基板

Parts No.	Stock No.	Description
jVR2	49940500	V.R. 50k Ω (B)

F-7191 VOLUME INDICATOR BOARD / ボリューム・インジケータ基板

Parts No.	Stock No.	Description
nLD7	49325900	L.E.D. SEL3210S

F-7192 POWER SWITCH & INDICATOR BOARD / パワー・スイッチ及び表示基板

Parts No.	Stock No.	Description
• DIODE		
nD6	46464100	1SS133
nLD8	49325900	L.E.D. SEL3210S
oS5	48169400	PUSH SW. SPEA12 NS
• DIODE		
wD7	46464100	1SS133

F-7193 SPEAKER SWITCH BOARD / スピーカー・スイッチ基板

Parts No.	Stock No.	Description
Δ kR35	49879300	N.I.R. 2W 220 Ω
oS6	49963410	PUSH SW. 2-SPUL22
oJ2	83375800	JACK HTJ-064-09DG
wZ1	49963000	SBX8020-F
or	78006900	SBX8031-F

F-7194 MAIN BOARD / 主基板

<Stock No. 01413200> (OO, SS, XX)
<Stock No. 01413205> (EU, FTZ)

Parts No.	Stock No.	Description
• TRANSISTOR		
jQ4	46188701	2SC1815GR
• IC		
Δ kIC1	49918400	STK4204MK5
Δ kR12	49875700	N.I.R. 2W 0.22 Ω
Δ kR13	49877700	N.I.R. 2W 10 Ω
Δ kR100	49877700	N.I.R. 2W 10 Ω (EU, FTZ)
Δ kR101	49877700	N.I.R. 2W 10 Ω (EU, FTZ)
kC13	49581600	E.B. 25V 100 μ F
• DIODE		
ID1	48123600	11E2
IRL1	49939200	RELAY OSA-SS-212DM
• IC		
Δ mIC1	49421100	NJM7812FA
Δ mIC2	49475100	NJM7912FA
Δ mIC3	49421100	NJM7812FA
Δ mIC4	49772500	NJM78M56FA
• DIODE		
mD1	48123600	11E2
Δ mD2	49383700	RBV-602
Δ mD3	03117000	RB152-LFF
Δ mD4	46273600	DBB10B
Δ mD5	03117700	10E2
Δ mR1	49867500	N.I.R. 1W 6.8kW
Δ mR2	49867500	N.I.R. 1W 6.8kW
Δ mR4	49850900	N.I.R. 1/2W 10W
Δ mR5	49850900	N.I.R. 1/2W 10W
Δ mR6	49850900	N.I.R. 1/2W 10W
Δ mR7	49850900	N.I.R. 1/2W 10W
Δ mC1	08680400	C.C. 500V 0.01 μ F
Δ mC2	08680400	C.C. 500V 0.01 μ F
mC3	49963600	E.C. 63WV 6800 μ F
mC4	49963600	E.C. 63WV 6800 μ F
mRL1	49939200	RELAY OSA-SS-212DM
oZ3	49600200	TERMINAL BOARD 4P T6005
oZ4	49600200	TERMINAL BOARD 4P T6005
oZ6	49961200	SPEAKER TERMINAL 8P T6492

F-7195 A.C. POWER SUPPLY BOARD

/ 一次電源基板

Parts No.	Stock No.	Description
△pF1	49297400	FUSE 250V 3.15A (EU , FTZ)
	49627800	FUSE 250V 3A (SS , XX)
	49628300	FUSE 250V 7A (OO)
△pF2	49627800	FUSE 250V 3A (SS , XX)
△pS1	49912600	SLIDE SW. SDKGA7 (SS , XX)
△pZ2	49939900	AC OUTLET CCT1306-0211 OO , SS , XX

F-7209 A.C. OUTLET BOARD

/A.C. アウトレット基板

Parts No.	Stock No.	Description
△pZ4	49723000	AC OUTLET KE31-0090 EU , FTZ

F-7214 SYSTEM CONTROL BOARD

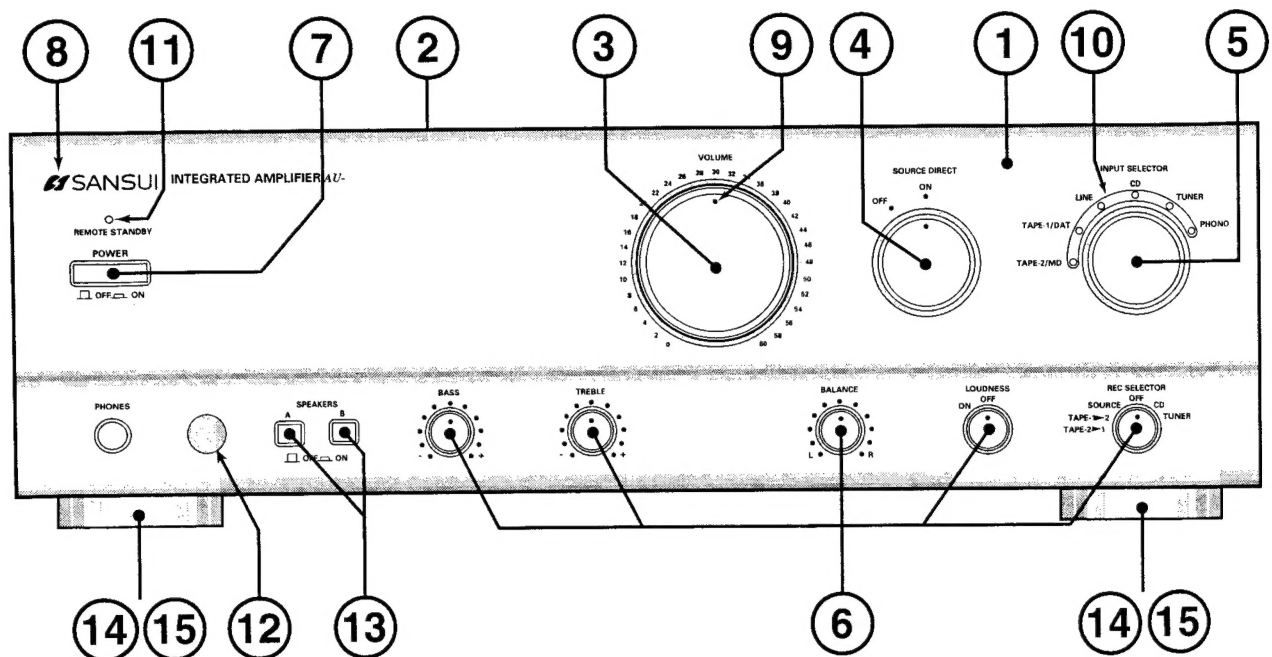
/ システム・コントロール・ジャック基板

Parts No.	Stock No.	Description
○J1	49958900	JACK JAM1796-02

FIXED PARTS

Parts No.	Stock No.	Description
△mPT1	15046900	POWER TRANSFORMER A3930 OO
	15046901	POWER TRANSFORMER A3930 SS , XX
	15046905	POWER TRANSFORMER A3930 EU , FTZ
△oS7	49543000	SLIDE SW. SDKGA4 (EU , FTZ)
△pZ3	46407700	POWER SUPPLY CORD (XX)
	83384200	POWER SUPPLY CORD (SS)
	83384300	POWER SUPPLY CORD (EU , FTZ)
	83384400	POWER SUPPLY CORD (OO)
qZ3	22301510	GRAND TERMINAL KD41-0042

6. MECHANISM PARTS LIST / 機構部品表



Parts No. Stock No. Description

1	05347700	FRONT PANEL	(00)	GOLD
	05333400	FRONT PANEL	(00)	BLACK
	05333500	FRONT PANEL	(XX)	GOLD
	05333600	FRONT PANEL	(XX)	BLACK
2	85184300	GRILLE	(EU, FTZ)	GOLD
	85183300	GRILLE	(EU, FTZ)	BLACK
	85212600	BONNET	(EU, FTZ)	GOLD
	85212700	BONNET	(EU, FTZ)	BLACK
	85212800	BONNET	(OTHERS)	GOLD
	85212900	BONNET	(OTHERS)	BLACK
3	85192900	KNOB, VOLUME		GOLD
	85193000	KNOB, VOLUME		BLACK
4	85193300	KNOB, SOURCE DIRECT		GOLD
	85193400	KNOB, SOURCE DIRECT		BLACK
5	85193100	KNOB, SELECTOR		GOLD
	85193200	KNOB, SELECTOR		BLACK

Parts No. Stock No. Description

6	85198300	KNOB, ACCESSORY		GOLD
	85198400	KNOB, ACCESSORY		BLACK
7	85163900	KNOB, POWER		GOLD
	85193900	KNOB, POWER		BLACK
8	05051200	LOGO BADGE "SANSUI"		GOLD
	05272600	LOGO BADGE "SANSUI"		BLACK
9	85193600	INDICATOR, VOLUME		
10	85192800	INDICATOR, SELECTOR		
11	85193700	INDICATOR, STANDBY		
12	85193500	WINDOW, REMOTE COMMANDER		
13	85164000	KNOB, SPEAKER SWITCH		GOLD
	85194000	KNOB, SPEAKER SWITCH		BLACK
14	85166200	COVER, RING, LEG		
15	85199400	CUSHION, LEG		

7. ACCESSORY LIST / 付属品部品表

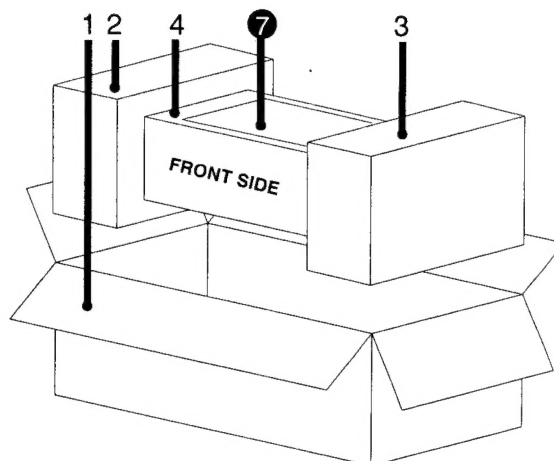
Stock No.	Description
83377900	REMOTE CONTROL UNIT RS-1740
	DRY BATTERY CELL ASSY (2PCS, R03/UM-4)
47852000	POLYETHYLENE BAG SMALL
82037000	OPERATING INSTRUCTION *(J)
82037100	OPERATING INSTRUCTION *(E, T)
82037200	OPERATING INSTRUCTION *(8L)

*NOTE

- J : Japanese Version.
 8 L : English, French, Spanish, German, Italian,
 Swedish, Portuguese and Netherlands Version.
 E, T : English and Old Chinese Character Version.

8. PACKING LIST / 梱包材部品表

Parts No.	Stock No.	Description
1	85191800	CARTON CASE (OO) BLACK
	85191900	CARTON CASE (XX) GOLD
	85192000	CARTON CASE (XX) BLACK
	85202800	CARTON CASE (OO) GOLD
2	85192100	POLYSTYRENE FORM PACKING LEFT
3	85192200	POLYSTYRENE FORM PACKING RIGHT
4	85180500	POLYETHYLENE BAG LARGE



SANSUI ELECTRIC CO., LTD. :

SANSUI INTERNATIONAL CO., LTD. :

SANSUI USA INC. :
 SANSUI DEUTSCHLAND G.M.B.H. :
 山水電気株式会社

A3930

(S.M. 2 - 431)

22 Sekinoue, Namekawa, Sukagawa-shi, Hukusima-ken 962-04, Japan
 Phone: (0248) 75-4174 / Fax: (0248) 76-6445
 Units B10-B11, 2/F, Block B Hoplite Industrial Centre 3-5 Wang Tai Road,
 Kowloon Bay Kowloon, Honh Kong
 17150 South Margay Ave. Carson, California 90746 U.S.A.
 Paul Ehrlich Strasse 8, 6074Rödermark 2, F. R. Germany
 福島県須賀川市大字滑川字関の上 2 2 (〒962-04)

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